API Testing

Precondition to learn API :→

↳ Java oops principles (little bit/ baby steps)

↳ Manual Testing (little bit)

Introduction :- Mr. Ankush

I am an purely Automation Test Engineer for both UI and Backend.

And past couple of years I have been asociated with Training profession.

My main focus / my Expertise in advanced Selm with respect Java and complete API i.e postman, Restassured.

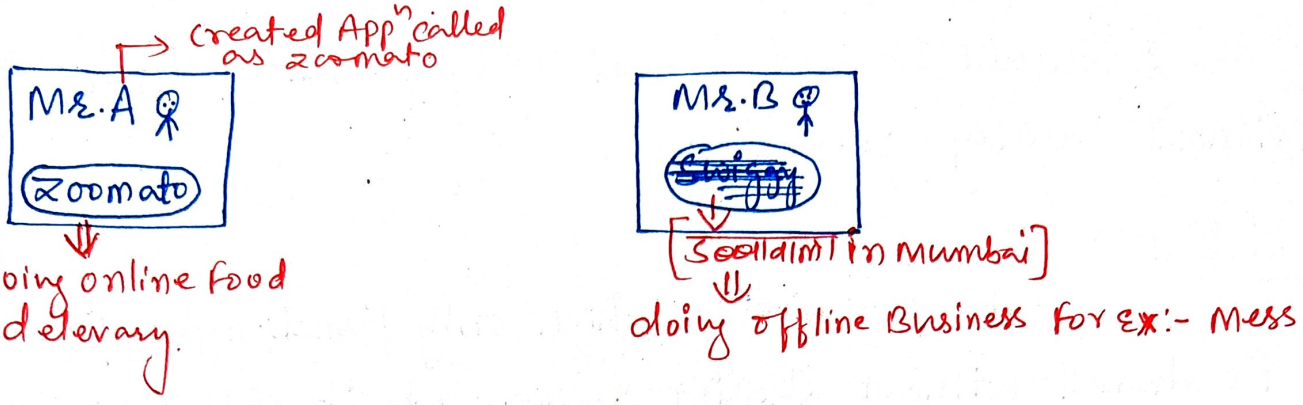
[Healthcare, salesforce, eRM]

[Postman, Restassured, Fidler] ⇒ These are the API tools.

I am sure U will njoy the sessions, Because I beleive more in doiy more practical Kind of thiys instead of just telliy the thiys

Idea abt API :-

G-1



Mr A and Mr B Both are friends.

Mr A. has developed slw and he is doing business in online mode but Mr. B is poor, he don't have money to create his own application from Scratch.

One day Mr B reaches/approaches Mr A. and asking abt online business, I am not getting that much profit in offline mode for consider pandemic situation came and everyone ordering food online itself. like this Mr B is asking abt online Business.

Since they are very close friends Mr A will share source do to Mr B, Mr B alter/modify the code in his own way and added some new features and created beautiful application than zomato, so that everyone is using swiggy in online mode rather than zomato. because of its features.

So that swiggy becomes popular and zomato went in loss.

Q] Why zomato went in loss ??

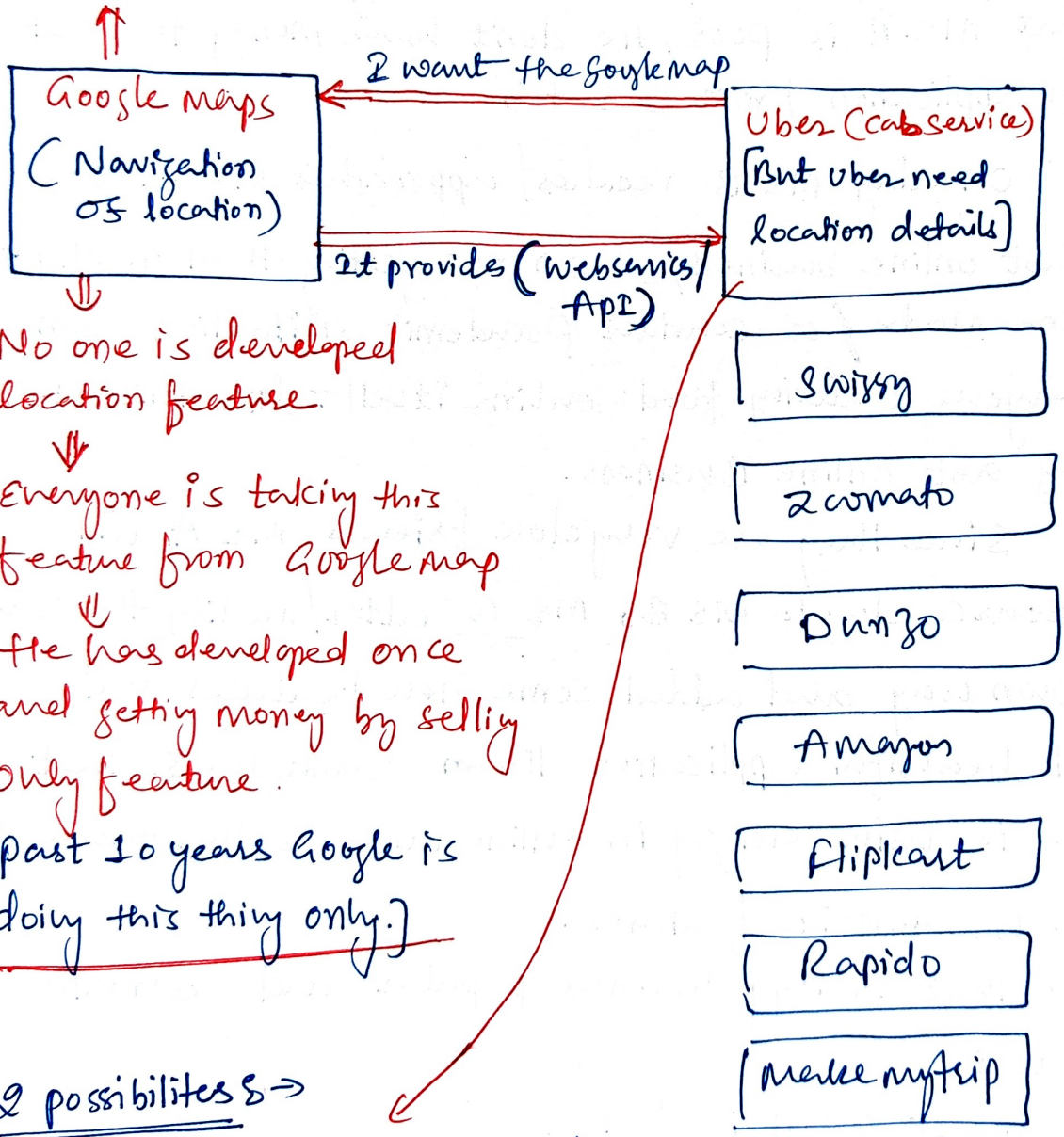
⇒ ∵ of sharing the source code.

Then after few days zoomato owner realize that Boss I have done mistake, unnecessarily I sent source code I should have to send only functionality/features without sharing source code.

API/webservice :→

The process in which only functionality/feature is shared without sharing source code in called as API/webservice.

[Oldest and most used API's are Google maps]



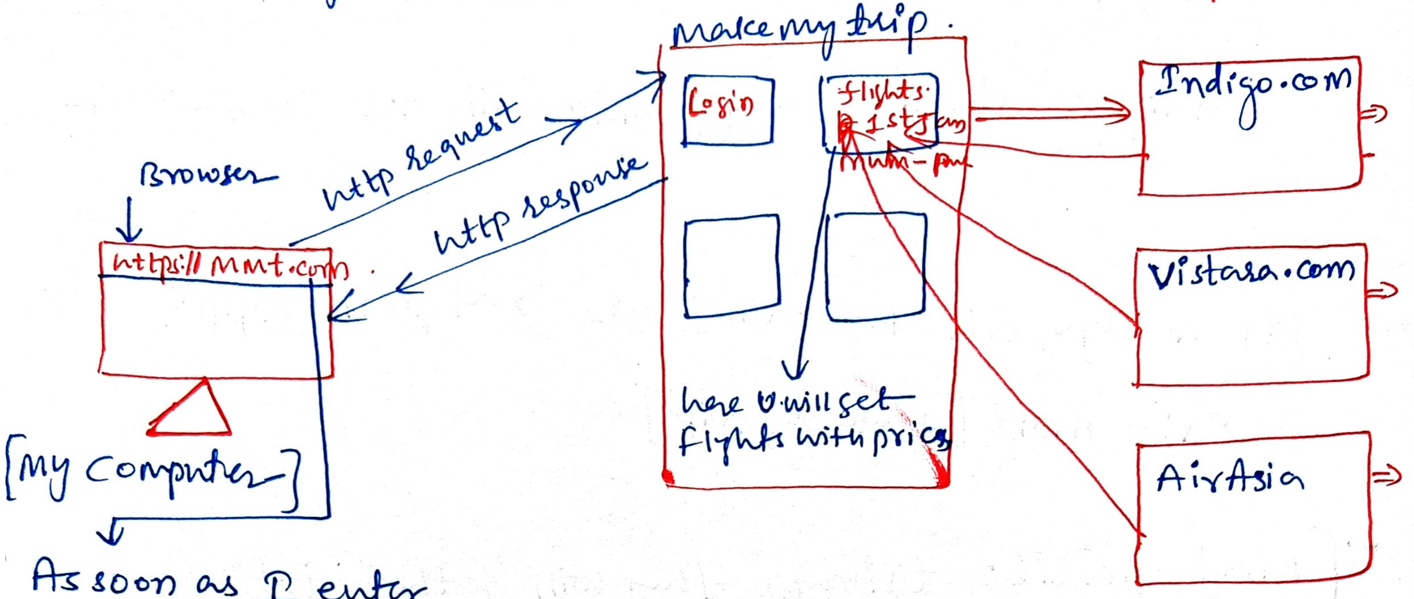
2 possibilites :→

① I can develope my own feature called as location

[OR]

② Google map is already developed it simply take API/webservices

Ex:→ I want to book flight from Banglore to pune on 1st Jan in makemytrip App". but I don't know abt app".



⇓ [3 are individuals applications]

As soon as I enter address what happen?

⇒ get some response.

[Note:- response means don't u think directly as output in console and all okay---]

It means it will navigate to Home page.

Q] But if ur address is wrong will u get any response??

⇒ No. [https://amon.com].

Note:- If address is not found / not correct then u will get unexpected response.

Q] why Indigo, vistara, AirAsia are visible in makemytrip App"??.

⇒

Q] जर मला Indigo मधून Book करायचं, तर मला confirmation MMT देईल But Indigo तिकीट देईल through MMT.

[only flight details, offers they will provide to mmt].

But not giving not all information.

mmt communicating with Indigo and it is taking some sort of info, this info exchage is via webservices/API.

Indigo is sharing only functionality not source code.

Q] Why we learn API's? Why it is Booming in IT?

⇒ plz analyze, all the app's are 3rd party App's.

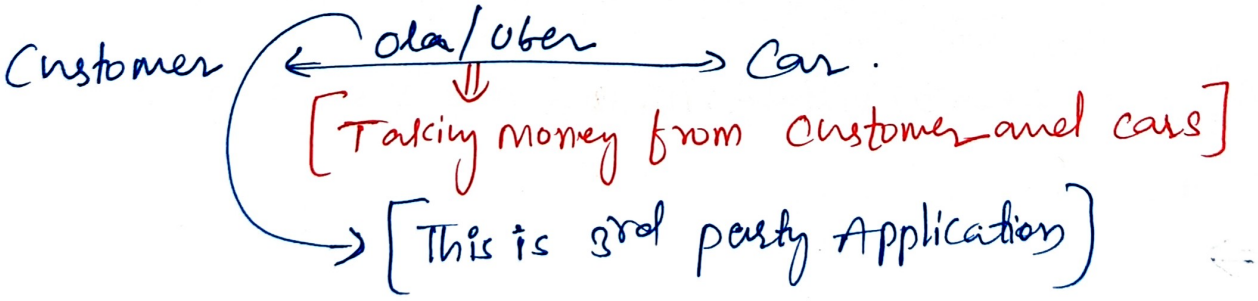
Ex:- mmt [make my trip]

- [mmt, goibibo, trivago they will gether info from other App's and they create platform, thryh this platform all multiple applications feature can be visible].

  ↳ They ~~have~~ don't have cars, Buses, flights.

Ex:- Ola, Uber

↳ They dont have Style car also. Car ∈ to driver if accident happens who is responsible. (car driver)



Types of Application

① Standalone App^n

a) Frontend, Backend, presentation layer are present in users system.

b) No need of internet

c) For Automation QTP tool is prefered

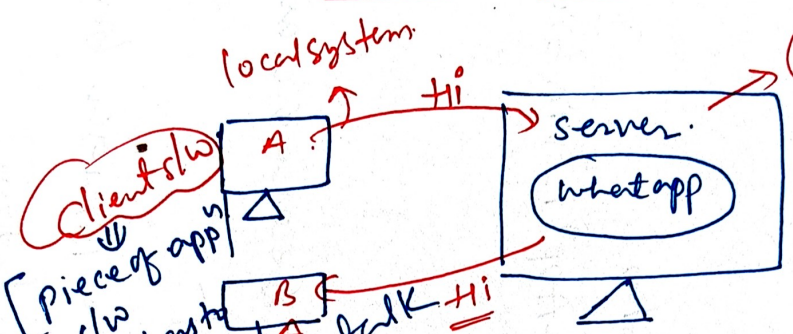
d)) Microsoft office
   2) Calculator
   2) Calender etc.
   4) notpad
   5) paint

e) Only one person can use at a time

f) It is called 1-tier application

Disadvantge:- [Everything we need to install]

② client & server App



⇒ It has more features than client s/w.

[Q] How u comes to know ur gf is online]

⇒ ∵ she is also connected with server

1) It consist of 2 s/w's

Server s/w:- It is actual app which will take the request from client

client s/w:- Its a piece of application that has to be installed in local system to communicate with server s/w.

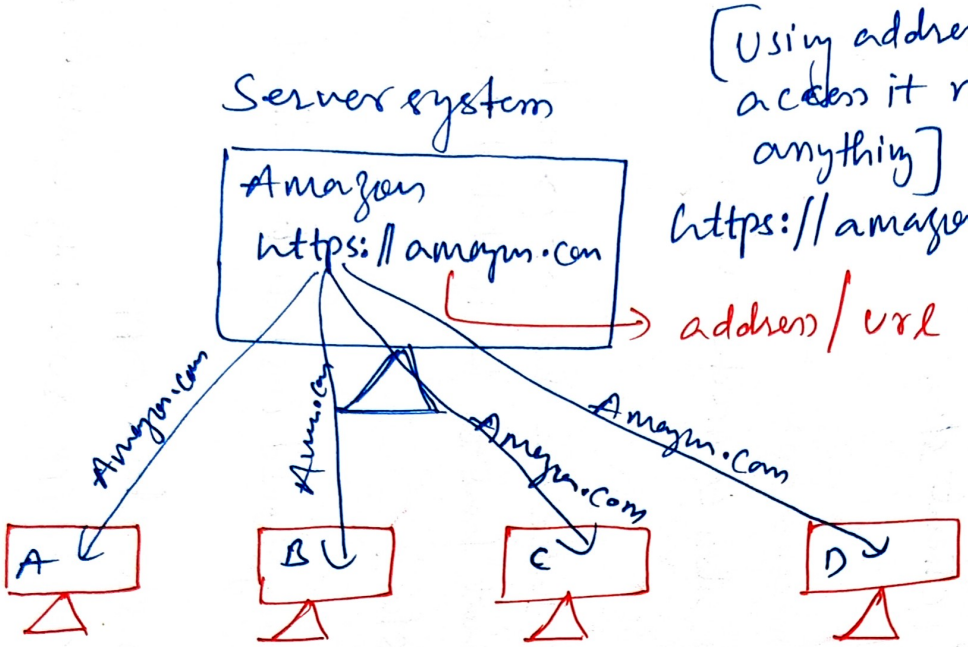
→ needs internet to access
→ Any no. of ppl can use but they should install the client s/w.
→ 2-tier application
→ It is better performance than standone app
→ Only UI layer is present in our lappy remaining 2 are in server sh
→ Ex:→ whatsapp, FB, Insta.

Dissadvatge:- [Here also we need to install atleast client s/w]

③ web Applications

→ P.T.O

③ Web App^{n} :-



[Using address we can access it no need to install anything]
https://amazon.com.

→ Any no of users can access
→ Internet is mandatory
→ no performance Issues
→ all 3-layers are present in comp system
→ The one and only way to access web-App^{n} is via browser or url.
→ Ex:- Amazon, flipkart.

Note:→ Browser is Stadalone App^{n} [∵ Because we are thirdly without internet can we open Browser]-

[Without internet, we can launch the Browser but to load the app^{n} internet is mandatory]

Day-3

Web URL: → It gives address of web-Application

URL → Unified resource location
URI → Unified resource identifiers

Q] Normally How address is written??

⇒ House no-22, Appartment Name, Area Name, Pincode etc.

Q] How they will track the location?

⇒ Pincode 1st ⇒ Area ⇒ Appartment ⇒ House No

Sameway we have so many computers are accessing same application at same time so how to identify our computer?

⇒ Every computer in network uniquly identified by two things 1) computer Name
2) computer Ip address
3) Domain Name

Syntax:→ Protocol://DomainName:portnumber/resourcepath?Querystring#FragmentID

① Protocol:- It provides sort of rules.

① http → hypertext transfer proto
② https → —"— secured version
③ ftp → file transfer protocol
④ SMTP → mail transfer protocol
⇓
[Browser to server communication is done via protocols]

② Domain Name:-
↳ It is comp' name
Comp IP address
- com – commercial
- org – organization
- edu – educational
- in – institutional
- gov – goverment

OR

localhost.

③ Portnumber:-
It gives the Path of App"
[specific port no. defines specific application]

Ex:- localhost 8888 → vtiger
localhost 8080 → Jenkins

④ Resourcepath:
Path to access the feature.
⇓
ex. gmail app
Inbox
Starts with "/"

⑤ Querystring:→
1) It starts with ?
2) It is Encrypted [It is not in readable format]
3) It is in key value format
(∵ key = value)
4) It is Search or filter criteria.

⑥ Fragment ID:-
↳ one portion of App" we can see using fragment ID.

Ex:- we can see only Inbox.
https//gmail.gogle.com#inbox.

Day-4-A :-

~~Network itself is~~ Internet itself is a network.

3-tier architecture

Static web App^n

Static web App^n consist of all static web resources

Dynamic web App^n

Dynamic web App^n consist of atleast one dynamic web resource.

Web resources → ~~Html~~ of feature present in App^n

Static web resource: →

If the response of the web resource is ready before the request is sent.

Ex:- registrations forms, App^n forms.

Dynamic web resource: → response of the application getting generated once the request is sent.

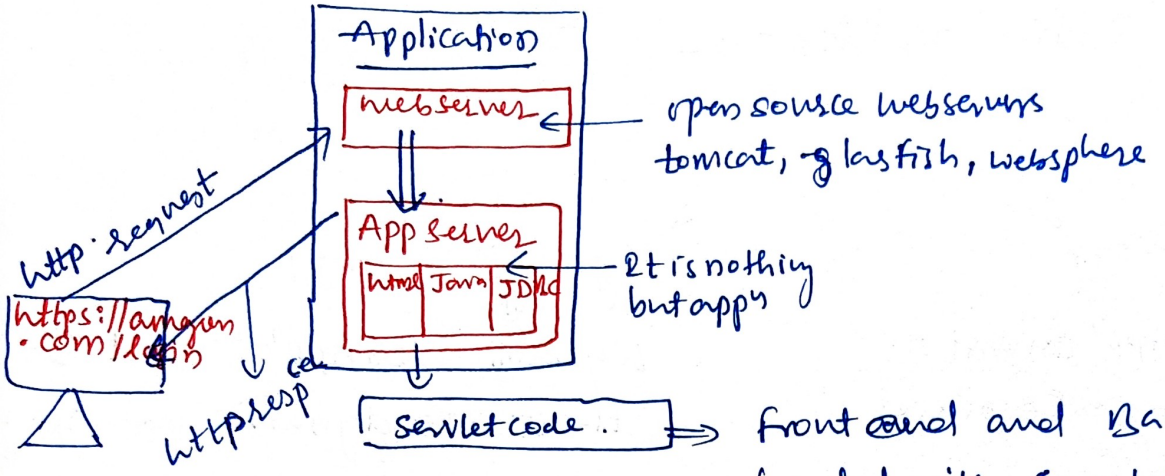
Ex:- payment bills, bank balance

Ex: → Restaurant :- Meal is ready → Static web resource.

[Roti: → Naan, Butter Naan, Roomali Roti]

[99% applications are Dynamic web Applications]

Client Server Architecture of web-based app^{n} :-



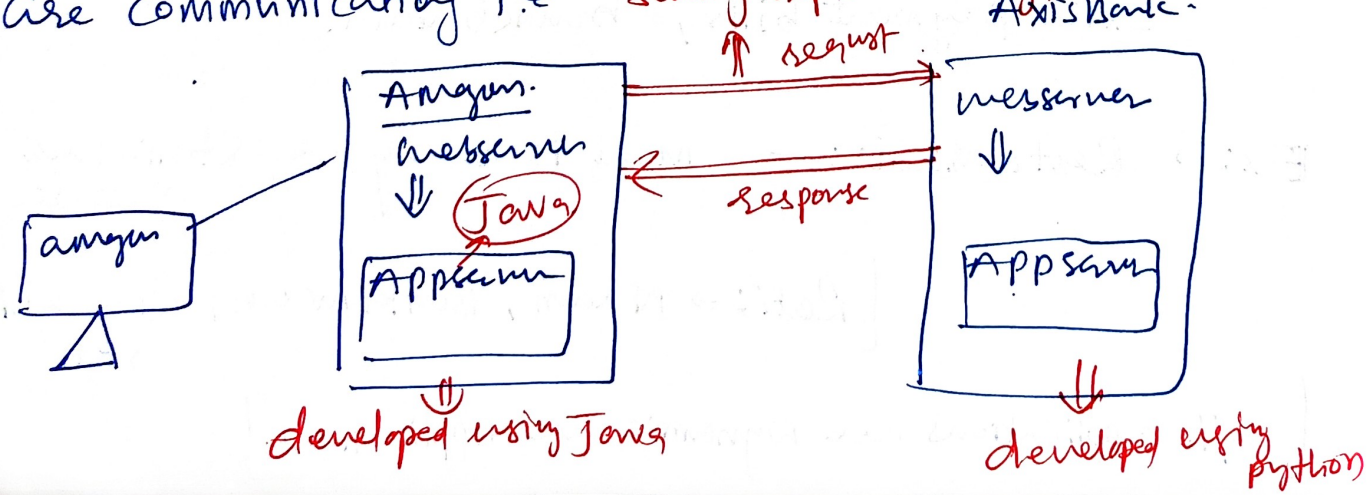
Job of webserver: → It will take the request and redirect your request towards App server.

It is mediator b/w Browser and Appserver.

Q] suppose u have booked one product in Amazon then what is happening we need to see??

1) Book a product
2) choose the product buy Now
3) payment order.

⇒ Boss, these u r doing payment with card which is of Axis bank. it means here two webservers are communicating i.e sending otp while doing payment.



Although Amazon is developed using Java and Axis bank using python still they are able to exchange info how??

⇒ Because of webservices / API.

Java and python can be converted either in xml or json

webservices are build on the basis of xml or json

platform independant layuges :→ xml/JSON

Any API/webservices are made up with: xml/JSON

Q] who is giving webservices / API ?

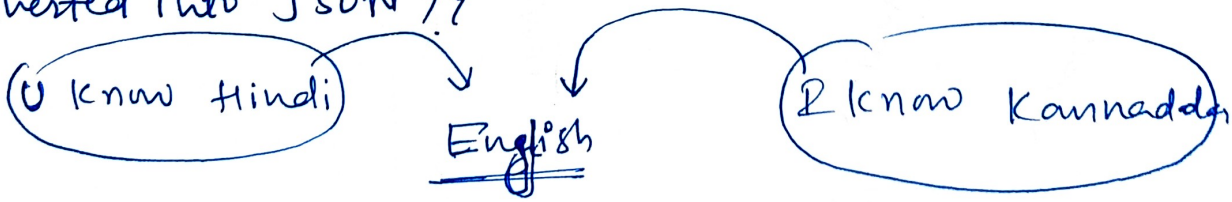
⇒ Axis

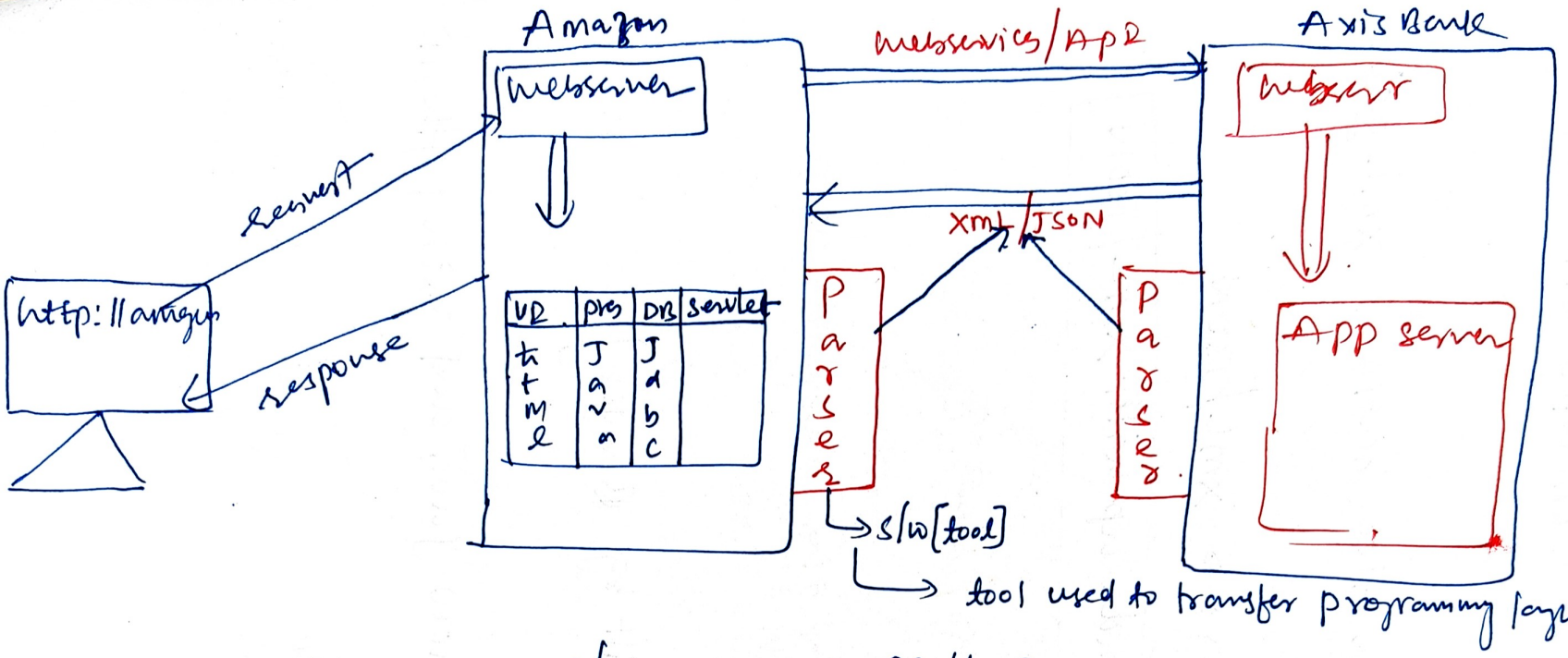
Q] who is utilizing / using the webservics / API

⇒ Amazon

[Payment gateways are built by Banks]

⇒ One more Question how Java and python is Converted into JSON ??

⇒ 



Java → XML/JSON → python.

Combinations :- ① Java ⇄ XML ⇒ JaxRS.

② Java ⇄ JSON ⇒

③ python ⇄ JSON ⇒

④ python ⇄ XML ⇒

XML :→ Extensive markup language

Day-4-B

↳ 1) its platform independant

2) used for communication blw 2 applications

3) Its extension of html language.

4) It follows the structure of html

Ex:- html format:-

```
<html>
    <title> page </title>
    <body>
        <div>
        </div>
    </body>
</html>
```

extension ⇒ .html

[It have some predefined tags i.e for text field input is mandatory]

XML format:→

```
<employee>
    <name> Ankush </name>
    <id> 123 </id>
</employee>
```

extension ⇒ .xml

[There are no predefined tags we can give our own tags]

* 1) Tags should be nested properly
2) Every opening tag should have a closing tag
3) XML is case sensitive
4) XML is Typeless → Everything is String there is no other datatype

5) xml can have elements and Attributes.

↳ Ex:-

```
<employee id = "slcytest123">
    <name> Andy </name>
    <batch> slcy21 </batch>
    <phone> 12345 </phone>
</employee>
```

(A)

[These are the 2-ways we can write data in xml]

```
<employee>
    <id> slcytest123 </id>
    <name> Andy </name>
    <batch> slcy121 </batch>
    <phone> 12345 </phone>
</employee>
```

(B)

Q] what is different b/w format (A) & (B)

⇒ Attributes are Non-expandable.

[element means: everything from ur opening tag to closing tag]

<emp> ... </emp>

Q] how many elements are there.?

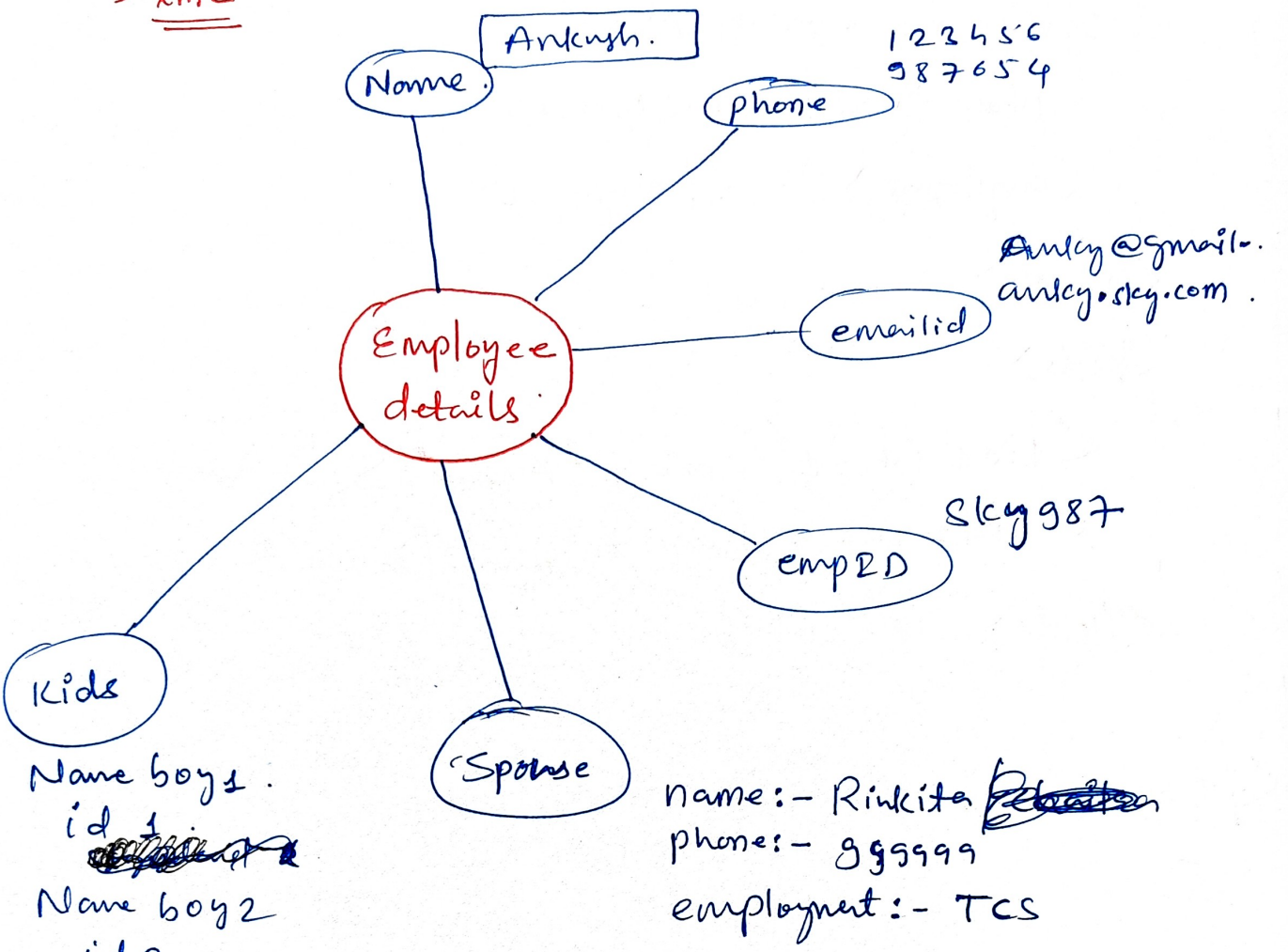
1) employee 2) name. 3) batch 4) phone.

Q] how many attributes are there?

⇒ 1 (id)

Task:- we have simple Java object. Employee details.

↳ xml



This in Java. and you have to write in xml layuge write fast??

⇒

```
<employee id = 'skyg87' >
    <name> Ankush </name>
    <phone>
        <phonenumber> 123456 </phone number>
        <second phone no> 987654 </second phone no>
    </phone>
    <email>
        <penail> ankuy@gmail.com </penail>
        <senail> ankuy.sky.com </senail>
    </email>
```

~~<spouse name='Rinkita'>~~

<spouse name='Rinkita'>
<phone> 3455657 </phone>
<employmt> TCS </employmt>
</spouse>
<kids>
<kid1 id='1' name="Anand"/>
<kid2 id=2 name='Babli'/>
</kids>

</employee>

* file extension for xml is → .xml
* Parser used for Java → xml is JAXRS.
* Disadvantages:-
    a) complex
    b) ~~Lengthy~~ lengthy
    c) confusion b/w attribute and element
    d) Parsing is tricky.
* Advantages of xml:→
    1) It is highly secured.

Comparing Adv and Disadv disadvs are more hence we are not using xml Json is more preffered.

Serialization:-

The process of converting Java object to xml is called as "Marshalling" / serialization

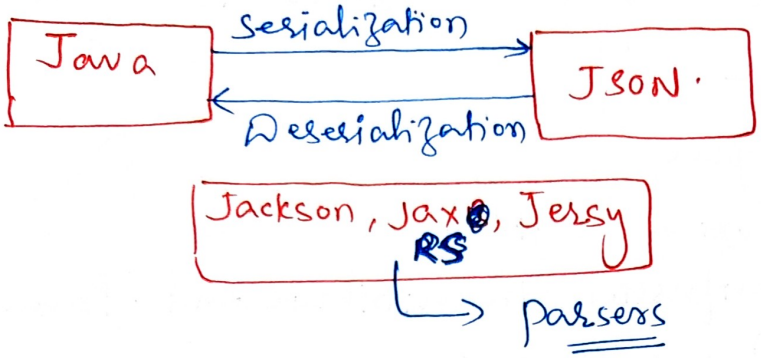
Deserialization:→

xml → Java conversion is called as "Unmarshalling" / Deserialization.

xml ⇄ Java parser:→

"JAXRS" is Java Api helps us to convert Java object to xml & Vice-versa.

Day-5-A :-



** JSON :→ Javascript object Notation

It is build upon Javascript langage. So do you want to learn Javascript to study JSON --- No need.

[JSON langage is used for Development of API]

[JSON is extension of Javascript]

Javascript :- It is prog lang

JSON :- It is used for Development of API's

Features :→

1) It is extension of Javascript langage
2) In JSON everything is respect to object

ex :- { } → whatever u can write i.e object.

3) It supports multiple Data types i.e

String
null
Integer
Boolean
Array
Object.
Array of object etc

4) The data is always in the form of key/name : value p
key is always string & values are multiple data types.

⇒ { } → represents object

⇒ [ ] → represents an array

⑤ It's not case sensative.

Ex:→

```
{
  "name" : "Ankush"
}
{
 "name" : "Ankush",
  "id" : 12
}
```

← [multiple data's are seperated by comma]

```
{
  "name" : "Ankush",
  "id" : 12,
  "isEmployed" : true,
  "phone" : 1234567
}
```

→ no comma.

→ [simple data]

•json

```
{
"name" : "Ankush",
"id" : 12,
"isEmployed" : true,
"phone" : [123456, 9878967],
"project" : {
            "name" : "API",
            "dur" : 12,
            "manger" : "xyz"
            }
}
```

→ [2 phone numbers project have multiple details]

→ complex data

extension → •json

Multiple details ∈ to same key then we need use.

1) Array
2) Object
3) Array of object

⇒ [different values are there with diff data types]

Q] When to choose Array ?

⇒ Whenever we have homogeneous type of data.

ex:- 2 int, or 2 boolean or 2 strings

"phone": [12345678, 998877]

Q] When to choose object ?

⇒ Whenever we have heterogeneous data types

ex:- [1 string, 1 int]

⇓

are ∈ to single key then Object we will take.

~~ex:- {"name": "Ankush"}~~

~~{"id": 12}~~

{ }.

Ex:-

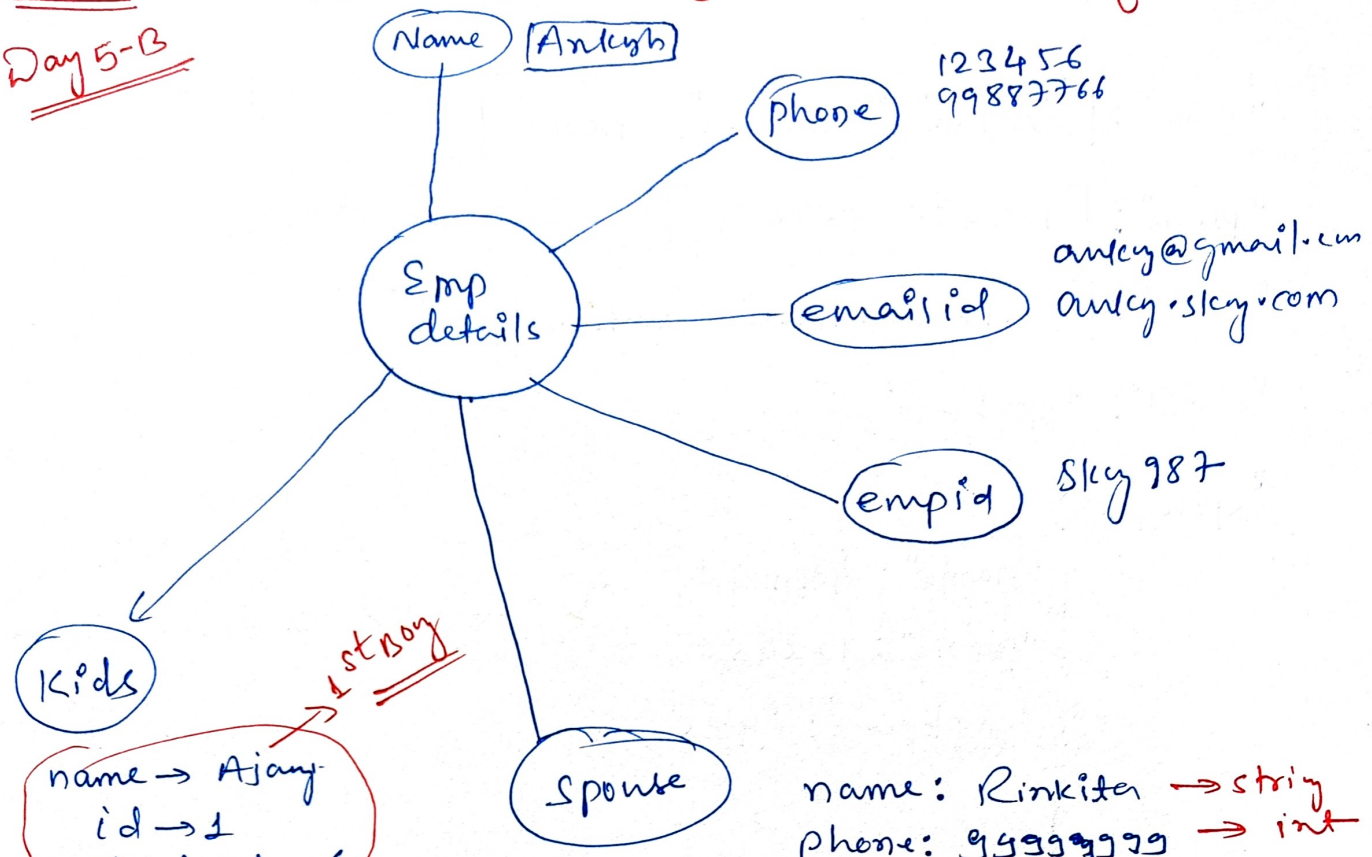
```
"project": {
    "name": "APP",
    "duration": 12
    "manger": "Xyz".
}
```

⇓

[objects are always written in key: value format]

Task:- Represent Java object into JSON format

Day 5-B




```
{
  "name": ["Ankush", "Gayadhar", "Horke"],
  "phone": [123456, 9988776],
  "email": ["ankyegmail.com", "anky-sky.com"],
  "empid": "sky987",
  "Spouse": {
      "name": "Rinkita",
      "phone": 99999999,
      "employment": "TCS"
  }
```

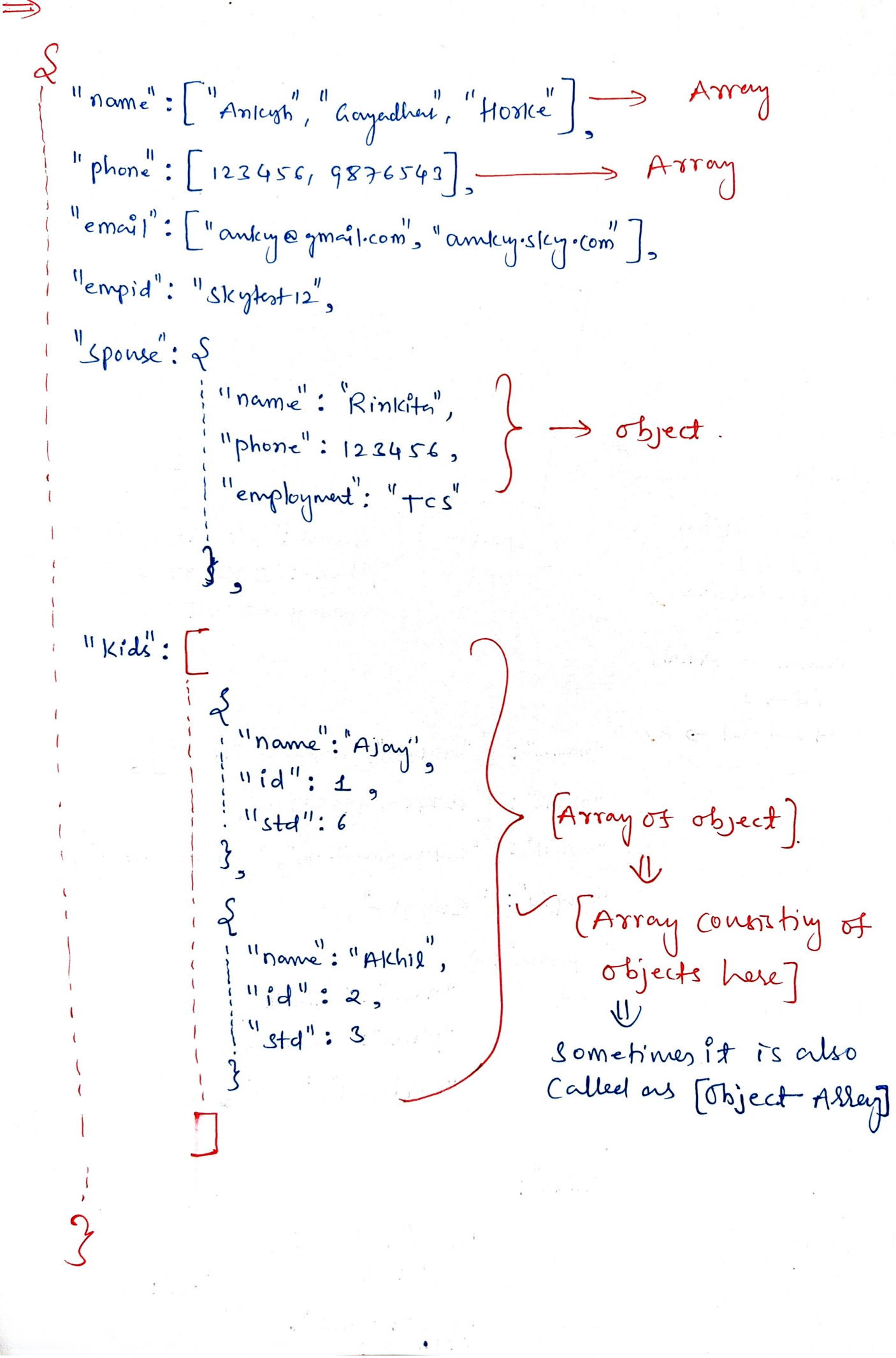
[key is spouse value is entire object]

```
  "kids":
      {
        "name": "Ajay",
        "id": 1
        "std": 3
      }
      {
        "name": "Akhil",
        "id": 2
      }
}
```

this is wrong

homogeneous objects ⇐ { object 1, object 2 }

[so write in Array] ⇒ DTO



Q] Can we take objects of Array ?? ⇒ NO....!

ex:- {
"name": [123456,99877].
}

→ it is not neccesary

Q] xml data we can read using → xpath [xmlpath]

Q] How to read JSON data ??

⇒ I want to read / pickup / fetch "TCS"

[We have jsonpath. it is simple than xpath.]

Rules for jsonpath :→

1) Inside object if u want to get inside the object use .
2) Inside the array go with index [starts index from 0]
3) ~~don~~ fetch the data with the help of key.

① Fetch "TCS" ?

⇒ . → control goes to "name"

control goes to here

. sponse

. sponse . employment

→ object of spouse

object of employee.

Q] Fetch 9876543 ?

⇒ •phone[1]

Q] Fetch id of 1st kid ??

⇒ ~~•kids.name[0].id~~ / •kids[0].id

⇒ Use JsonPathFinder :→

⇒ Gorest.in मध्ये जा.

id = 10 पर्यंत copy करा] } देवून close करा

मग रेमॅगाळून झोपा.

Calculator :- https://calculator.com

addition → https://calculator.com/addition.

subⁿ → n → /subⁿ

divⁿ → n → /divⁿ.

https://calculator.com / subⁿ

⇓ Baseurl . ⇓ endpoint

Baseurl + endpoint = 1 API

* what is webservice ??

⇒ 1) Any service available over the internet

2) Its a commⁿ b/w two app's without sharing the source code or data and irrespective of the underlying technology

* what is diffᵗ b/w webservice & API ??

→ 1) All webservices should be exposed via API's only } {Contradictory Statᵗ}

2) But All API are not webservices

Webservices :-

Ex :-

Payment gateways, ticket booking, Food ordering, hotel Booking these are all webservices and they are exposed in the form of API's.

API :-

Ex :- J2EE API, JDBC API these are API's but not webservices

Q] Why they are not webservices ?

⇒ ∵ they are not giving service to customers.

* Types of webservices :-

very popular

⇓ Simple object access protocol
SOAP webservice (only xml language)

① xml platforms

② exposed via .wsdl file (webservice description language)

Ex :- Calculator → all are binded in wsdl file ! (1) addition 2) subⁿ 3) mulⁿ 4) div) ⇒ G to .wsdl file

Restful webservices (xml, Json, text, html)

1) REST ⇒ Representational state transfer

2) It is build on Json, xml etc. but Json is popular

3) exposed via URL

Ex :- for addition → diffᵗ URL / for subⁿ diffᵗ URL

Day-6-A:-

Without Browser how do you access it. using HTTP request

HTTP structure:-

Till now we never worried abt HTTP structure because Browser was doing communication but now there is no Browser we are manually sending request. okay

HTTP structure:-

what u sent to the server is called request

http request → mandatory

① WebURL: → Specifies the address of App
② It says where u have to send request
③ It is designed by App developer
④ http method: → ① It is understood by server
a) It defines what operⁿ we should perform in the server
b) Ex:- post(), get(), put(), patch(), delete(), clone(), copy(), fork() etc

① post() :- to create new resource in the server.

② get() :- Read/Retrive the existing resource from server

③ put() } used to update resource details in server
patch() }
↳ partial data updates

④ delete() :→ Delete the existing resource in the server.

Create	C
Read	R
update	U
delete	D

⇒ CRUD operation

Q] Why CRUD operation?

⇒ It is only way to test Api's.

[It checks Api are functionally stable or not].

OR

[Functionality check of ~~Api~~'s are done with CRUD operation]

Note:→ [Don't think create read update are the methods, ~~this is the~~ to perform CRUD operation we have to used these methods.]

③ content type :→ The type of information present in the app.

for 1) JSON → application/JSON
2) XML → application/XML
3) Veedio → Video/mp4
4) ~~Audio document~~ → Audio/~~mpeg~~ mpeg

[" content type is also called as mime type"]

4) document → text/html
5) Image → image/jpeg.

But, we are json data hence application/JSON

(4) Coockies:- It stores the navigation history of app"

Navigation history means how many times have u visited it.

* how many times u have performed that particular action it is going to be stored in a small cache memory so. that inf" also we can track using http header.

**** Request Body:-

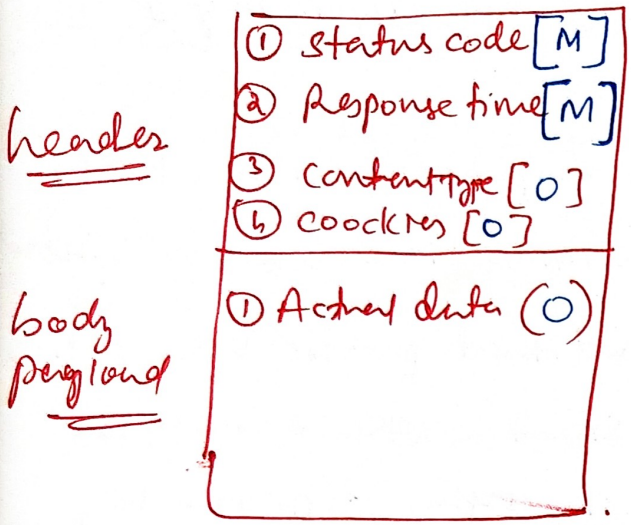
(1) Body data / form data. we are sending through request body, it is also called as "payload".

Note:→ I want to do get operation, so there is no need of payload/form data.

* for put operation do I need form data ?? ⇒ yes...
* Delete:→ No need of form data.
* patch → we need data/payload

Note:→ for get() and delete() payload is not required.

Http Response



① **status code:→** It specifies the status of the request.

skip we can't use

- **100 series :→** continue: (U can go further)
- 200 series :→ Successful
- 300 series:- Redirected. (while doing payment, you have been redirected to the bank page, don't press back/ cancel Btn) have u noticed it. in such case we are redirected from one app to other app)

400 series:- client side error.

Q] Who is the client here?

⇒[Ur the client, if u make mistake in url/ while sending req^t to server then it comes.]

500 series:- server side Error

Ex:- req^t is correct, but server might be down i.e server side Error.

It will not tell u: you have not given this inf", this wrong, this is write. based on Status Code we need to Analyze it okay ---!

② Response time:- The time taken by server to respond to the request. (It is in milliseconds ex:- 200ms, 300ms)

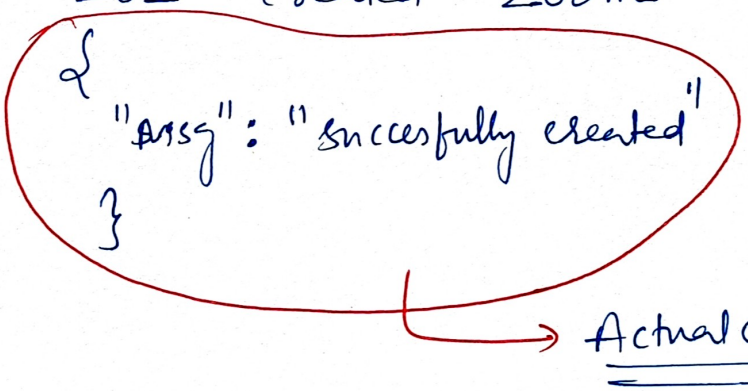
③ Content Type (O):→

④ Cookies (O):-

*** Body payload / Response Body:-

when we send the Req^t, we will get some response ie

i.e 201 created 200 ms



[The data present in response body is called as "Actual data".]

for validation :- [status code and response time is mandatory]

C → 201/200.
R → 200.
U → 200.
D → 204/200

} Expected status codes.

**** :→ Fiddler (web debugger tool)

↳ It will tells that how Browser is communicating with application internally. Actually It is used by App Developers for debugging purpose.

Download Fiddler (web debugger)

Note:- [After Installation of Fiddler run it as in Background and run actual App. then check it how it is communicating]

** Pre-Requisties for API Testing :→

Day-6-13

1. Knowledge of client server Architecture
2. Knowledge of JSON / xml langage
3. Knowledge of http structure
4. API document / API functional specifications.
5. List of API's
6. Tool to test API's.

Q] What is API document :- → customer requirement specification / SRS

1) It acts like a SRS for API testers
2) API developers will share
3) Swagger ~~document~~ to design API document
4) API document consists of a) Base url
   b) versions endpoints
   c) http methods
   d) Authentication details/info

* In Browser type petstore api.com / swagger petstore :-

swagger is company

[Base url : _____]

Pet
store
user
} ⇒ These are modules who are exposing API's

If u open it; pet module is exposing 7 API's

like store
like user
} ⇒ Total = 19 API's

⇒ Store

↓

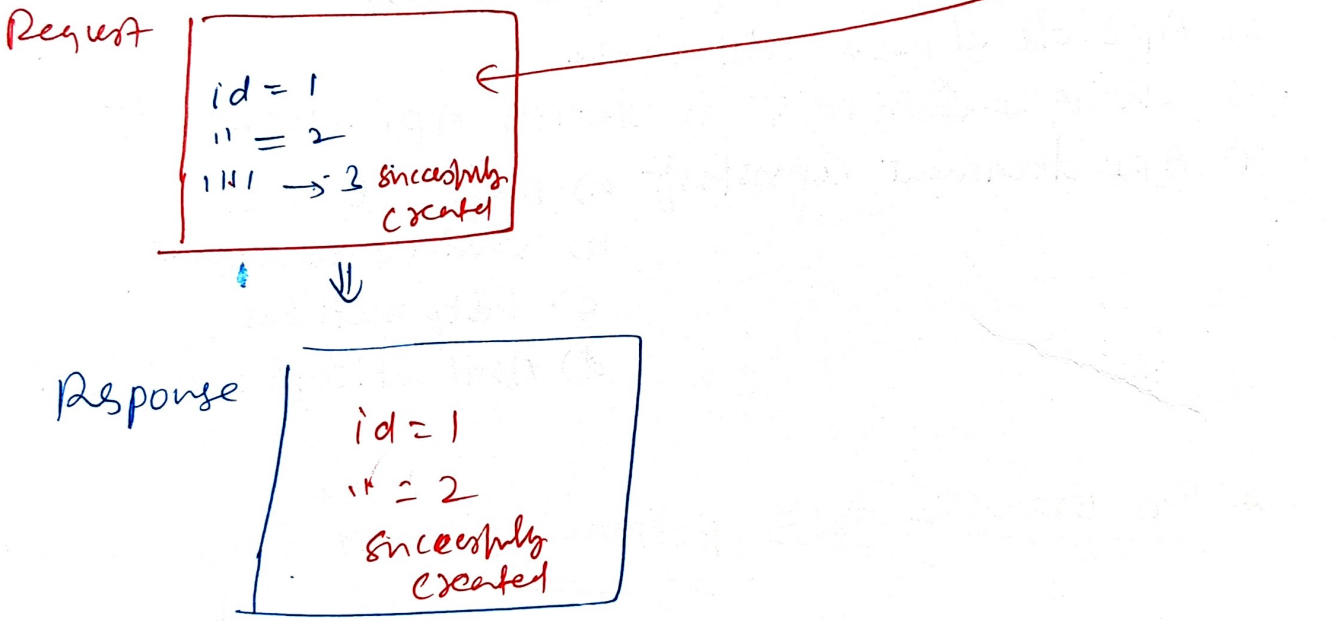
post (1st ~~order~~ option)

⇓

Open it.

⇓ See request and response.

Suppose if we don't have POSTMAN, then in swagger it self we can make validations by click on Try it out



Day-7-A

Postman (In detail from Scratch)

Q.1] How to do API Testing?

⇒ Developer will provide us API document/Swagger document. on the basis of Swagger document we can do API Testing.

Q.) What is API document? What it will contains?

⇒ 1) Its like SRS/CRS for API Testers.
2) It is provided by API Developer.
3) Developer use swagger to develope API document
4) It consist of
   a) Baseurl
   b) Vasions end points
   c) http methods
   d) Authentication details/information.

Install postman of 64-bit.

① create collection which contains multiple requests

Collection + → click on it. Give collection name [Ankey]

v. Ankey ⟶ ... → click on it (Add Request)

[Req^st name should be same as that of our TC name or it is same as the activity which ur going to do.]

for ex:→ Store module
req^st: → CreateOrderTest.

Ex1 Petstore → Store module.

① Post /store/orders

② Post Base url + end point
↳ write properly this is case sensesns

↓ Body

⓪ raw.

⇓

[raw data means ~~exe~~ it is direct object]

```
{
  id :
  petId :
  qun :

}
```

⇒ copy and paste inside raw. [But choose JSON].

③ JSON ∨

JSON → Key in red, value is in blue

Text → Everything is in Black

④ status make as delevered

⑤ Save it. So that color of HTTP method will change.

Ex 2 ① Add request → (get from store module) [here no Body]

Note:→ you can give any order id within 1 to 10 it will ~~get~~ give o/p.

GET ∨ getOrderTest

——— n ——— /store/order/3 → ∵ It will give o/p (1 < 10)

↓

Save it [No need of Body].

⇒ [id = 3

!

status :- delevered]

Ex 3 Delete:→ from store module

for delete we need to use endpoind as orderid

for:-

https://petstore.com.v2/store/order/3

→ 1 < 10

OR

https://petstore.com.v2/store/order/5

Ex-1 sir [Gorest.in]

Explain CRUD operation :→

1. Create :→ POST()
2. Retsive/Read :- get()
3. Update :→ put /patch
4. Delete :→ Delete existance resource.

Diff b/w PUT and PATCH

PUT url/id	PATCH url/id
1) used to update the data	1) used to update the data
2) using put, we need to pass Full payload	2) partial payload
3) Ex:- { "name" : "smita p", "gender" : "Female", "email" : "smita@1996.com", "status" : "active". }	3) Ex:- { "email" : "smitahosice@1995.com" }
4) Response is slow	4) Response is fast
5) Required more band width	5) Required less bandwith

Day-7-B

Test snippets in postman :→

↳ 1st thing postman is max[m] used by Manual Tester

2nd postman is build on Javascript laynge.

If we want to validate API's in postman we don't ~~want~~ have to learn using snippets we can validate.

[It is similar to inbuild methods]

***

Snippets are used to validate whether test case is pass or fail. It is similar to Assertions in TestNG.

As I said it is inbuilt code, let me show you...

Go to. →1) Tests

→2) open snippets

Try to use the snippets which I am telling, Other Snippets requires more understanding, But atleast what I am telling here go through it.

1) Status code is 200

⇓

~~pm.test~~ Explaination is on next page

① Status code is 200 :→

message in response (we can write anything)

```
pm.test("Status code is 200", function() {
    pm.response.to.have.status(200);
});
```

expected status

Q] what is actual status code?

⇒ whichever we are getting in response after hitting API.

Comparison

Expected Status code

actual status code

Ex:→ make changes as your choice and see the result in Test Results

1) If we make (201) it will fail.

[we can give many no of snippets for single API]

② Response time is less than 200ms

here we can make changes i.e

1) Response time is greater than time and to be above / below / equal

however we want to change we can make the changes.

① Status code, code name has string | codename validation

Ex:→ 200 OK
↓
it is code name

202 accepted
404 not found
500 internal server error
↑
code name

Code name validation:→

```
pm.test("status code name has string",
        function() {
    pm.response.to.have.status("OK");
});
```

④ Response headers: content Type header

[Note:→ Here No need to give the content Type it will check whether content Type is present or not]

⑤ content Type header check

whether in Response header containing "content Type" or not. [It will not check app"/JSON or not] Okay

Day-8-A

What basically collection means??

⇒ Set of requests, coll^{n} of request I am dumping inside single project.

Note:→ whenever we are creating request, give the proper validation through snippets..

1 → request

Snippets means we are adding feature to request.

Vimp

Every status code should be associated with code name i.e

200	OK
201	Created
202	Accepted
400	Bad request
401	Unauthorized
403	Forbidden
500	Internal server Error

→ code name

* Variables in postman:→

↳ small storage unit [small piece of memory.

[Variable helps us to access that data.]

Types of variables in postman:-

① Local variable:→

Its accessible only inside a request.

② Global variable:→

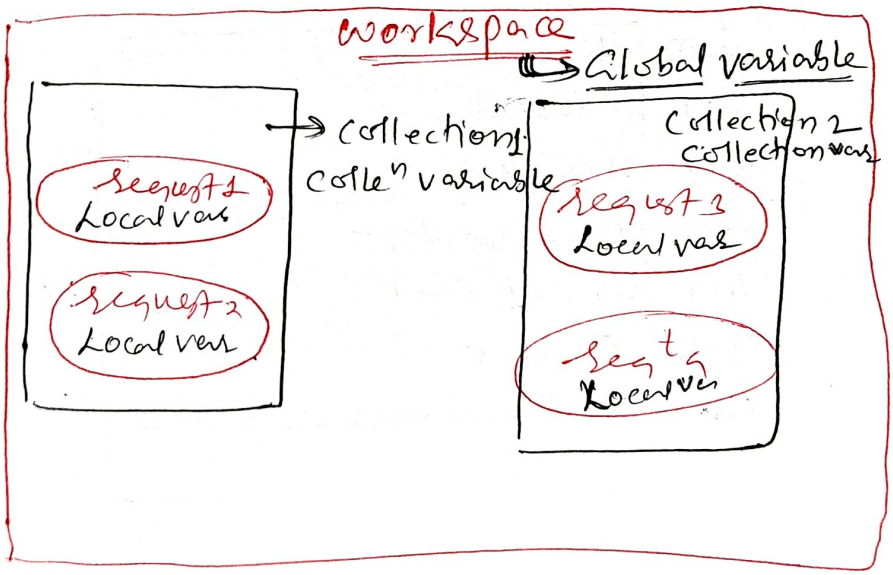
Its accessible inside the entire workspace.

Workspace → contains multiple collections.

③ Collection Variable:-

Its accessible inside the collection.

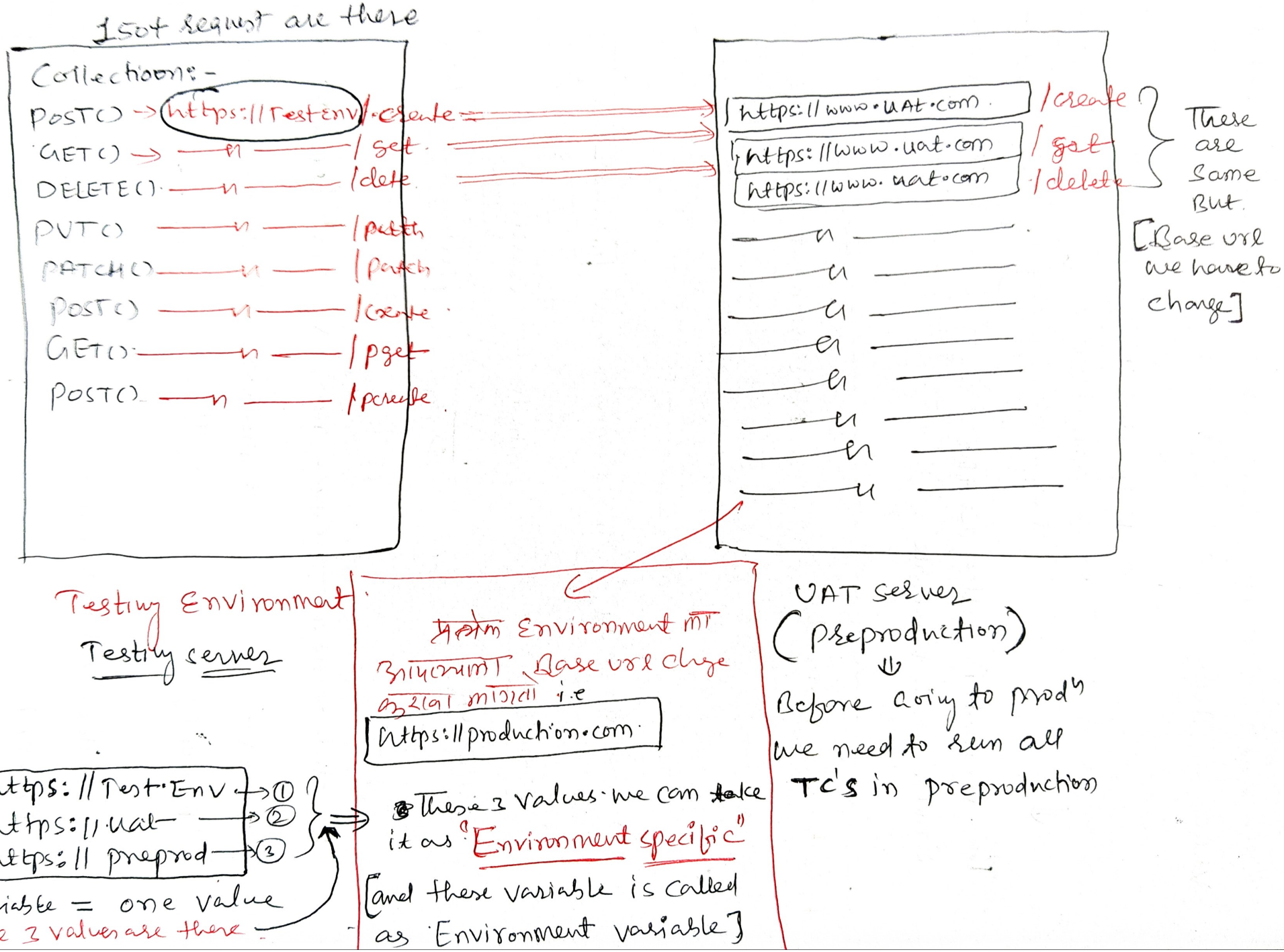
Ex:→



④ Environment variable: → accessible Inside the entire workspace but in a specific envirot.

~~but it is same as Global but~~

[Note:- It is same as Global but there is condition. what is condition observe the scenario].



Base url is exibhitiy polymorphism. It is Base url but values is chaging

Base url ⟶
1) https: www.test
2) https: www.uat
3) https: www.prod

⇒ [These 3 values you can take it like Environment specific]

This variable is called as the Environment variable

How to Set Variable?

No Envirnuet. ∨ (eye Symbol)

⟶ click on add Envirn.

1) click on Add → Give name to envt [APIweekd_Testing.]

VariabeName	Initialvalue	current Value
BaseURL	Empty	https://petstore/v2

2) click on Add → Given name of envt [APIwet-uat.]

variable	Initial value	current value
BaseURL	Empty	https://.uat.com

3) Click on Add → Given name of envt [APIwet-prod]

BaseURL — [https://prod.com.]

Environt V.

↳ set envt here.

{{BaseURL}}/store/order

⇓

BaseURL prodn Envt.	① prod

[Like this it will show all Environments].

8-B

Till now we have discussed all snippets related to response header now I am going to start snippets related to response body. Validation.

Now hit the API i.e post having url as

{{BaseURL}}/store/order

Envt [A-T]

⇒

```
{ "id": 9223372036854775807
  "petId": 0,
  "quantity": 0,
  "shipDate": "2022-02-14T12:48:01",
  "status": "placed"
  "complete": true.
}
```

Send it

⇓

Response Body

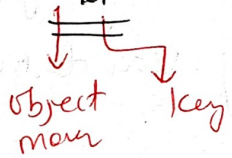
for ex:→

```
{
"id": 3,
"petid": 2,
"quanty": 2,
"shipdate": "2023-01-22-3:37",
"Statu": "delevered",
"complete": true
}
```

Q] suppose you have to fetch id how to fetch?

⇒ using Jsonpath

⇒ for id ⇒ $.id



for this validation we can do using snippets also.

⊛Snippets regarding Response Body Validation:-

1) ~~Contain~~ Response Body contains string

[Drawback :→ contains will gives status as pass either "delevered" or d.

this is not the correct way of testing/validating API.

2) Response Body JSON check [ossently/most used snippet in organi Sation

Value ↓ key

T; U can write value

* Parameters in API :- This concept is used to avoid the hardcoding of data.

1) Path parameter
2) Query parameter
3) Form parameter

(1) Path parameter :→

- It is associated with the resource path of web URL
- Using it we can send the same request with diff endpts
- It is written in swagger as path. and It is denote by { }.

(2)

(2) Query parameter :→

- It is associated with the query string of web-URL.
- Using it we can send the same req^t with diff^t search criteria
- In swagger it is represented as query.

(3) Form parameter :→

- It is associated with the form data of request body.
- Using it we can send same request with diff formdata.
- In swagger it is represented as formdata.

* Authentication :→

Since Json is less secured, we have to provide security to Rest API with External Authentication.

1) Basic auth
2) Beares Token
3) Oauth 1.0 → open Authentication
4) Oauth 2.0 → open Authentication

→ most popular one

① Basic Auth :→

- It consist of UN and PWD
- PWD will be usually in readable format
- It can be shared with anyone
- Less secure

Ex:→ UN :- admin
PWD :- manger@123

// open postman show them Authorization, expand it. Developers will provide UN and PWD.

Note:→ Here Anyone can see the PWD hence it is not much secure compared to ~~Oauth 2.0~~ Beares Token.

② Beares Token [बेरियर टोकन] :→

- It consist of 25 digits of alphanumeric characters
- It is not in readable format.
- Token will given by API developers.
- Its valid until the Developer changes it or its expiry
- It can be shared

Ex:→ It is secured as compared to basic auth.

What is Disadvantage of Bearer Token?

⇒ It can be shared

[It is removed in Oauth Authentication]

1.0 } versions
2.0 }

→ Its popular

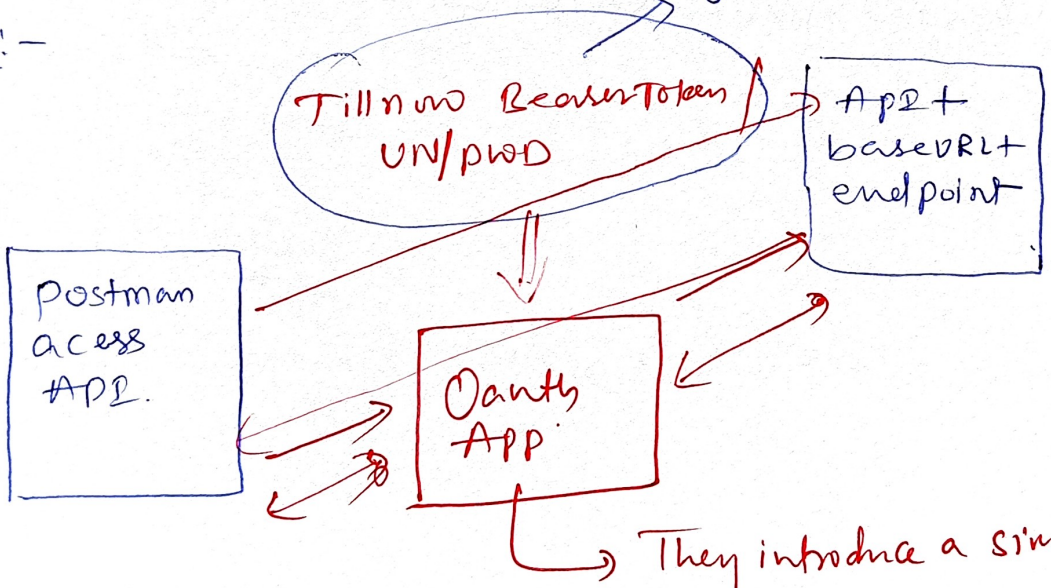
③

Oauth Authentications:— Open Auth

Oauth 1.0

Oauth 2.0

Ex:—



They introduce a simple application
i.e Oauth App

Oauth App consist of: 1) client id
2) client secret

It is generated by Developers and sent to you

It will be provided
through this ~~we will~~ access to can directly Communicate
with [API endpt endpt]

It will acts as
OTP (it will valid upto
5 minutes)

Oauth Characteristics:-

1) It consist of client ID and client secret specific to an Oauth app which is developed by API Developers.
2) This Oauth app will generate access token which is similar to bearer token and its valid only for few minutes.
3) client ID, client secret and Oauth App URL's are given by Developers.
4) client ID and client secret can be changed at any time
5) Access Token acts like OTP hence cannot be shared
6) It provides maximum Security.

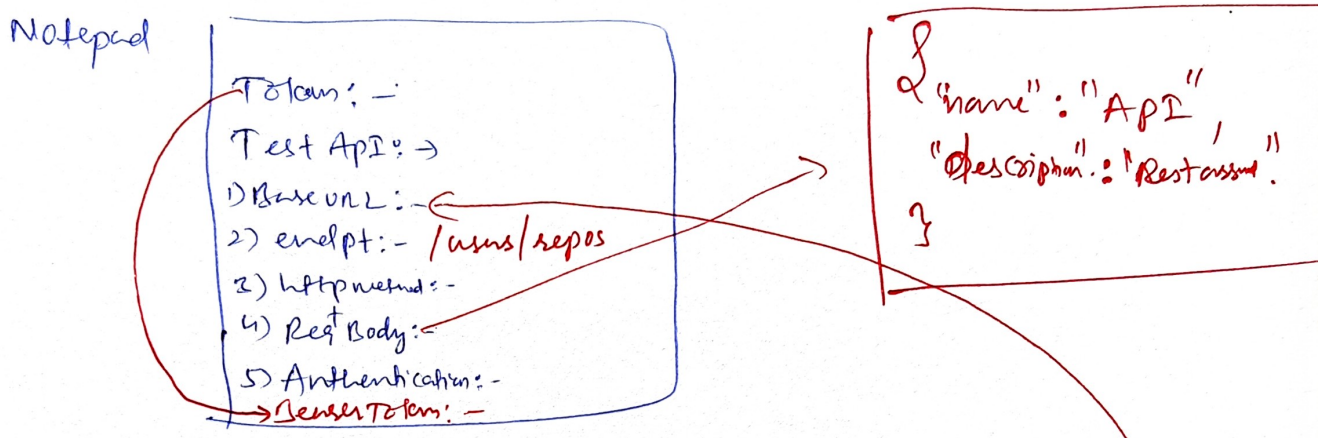
Q] How to take Bearer token from Github ?

99000 18030

⇒ Git-Hub – Rest API's

Till the Token generation same

Copy the generated Token and paste in Notepad



Close github acct open another Brows.

Type:- github API

⇓

github Rest API's

⇓

expand overview [which is at left side]

⇓

Click on → Resources in Rest API

⇓

Under schemes · Base Url is there copy and paste it.

⇓

Scroll down under Resumes in Rest API · Click on

github APP – enable endpts

⇓

under repo module click on 2nd link

Post operation http method (post)

⇓

left scroll down create rep for authenticated user Click on it

endpoint is ~~here~~ take and paste in Notpad.

Rest Assured :→

Disadvantages of postman :→

1) Unable to do end to end scenarios. And End to End scenarios can't be automated.
2) Mostly suitable for Manual API Testing

↳ Rest Assured specially work with Java hence it is Java Library.

for ex:→ Java - Rest assured

~~Python - Se~~

C# → Rest sharp

We have a scenario :→

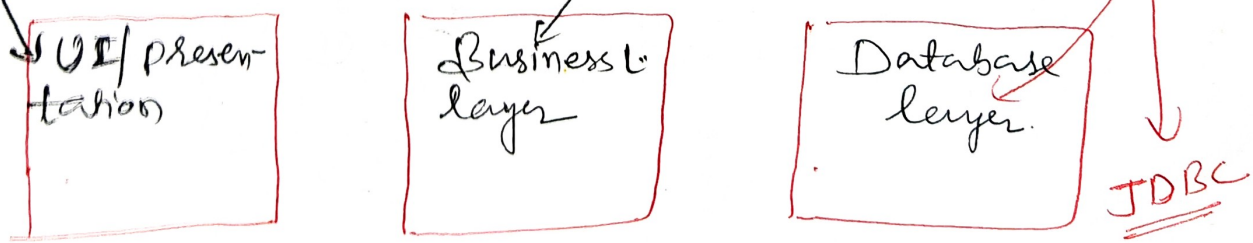
1) Login to app
2) search for product
3) Add the product to the cart
4) check whether the product is added in cart page.
5) check whether the product is added in cart table of DB
6) Verify the cart details with GET api request
7) Logout from Application.

→ Restassured

1234 @ UI layer

@ to BL

@ to DB



Selenium

Note:→ All these 3 layers | 3-tools can be working together in one platform called as "Eclipse"

* Rest Assured class Diagram: →

for precondition (given())

RequestSpecification (I)

[It helps u to set the precond" which is necessary for our request]

body()
contentType()
auth()
  → basic()
  → oauth2()

pathparam()
queryparam()
spec()

RestAssured (C)

get()
post()
put()
patch()
delete()
= for CRUD these are useful

→ U r sending req^st what you will get so that the Return type of all these http method is Response (I)

and it contains

precond^n ← given()
Action ← when()
Validation ← then()

→ these are from BDD approach, they are Gherkins keywords here they are methods not annotations

and again

baseURI()
port()
basepath()

Response (I)

then()
getstatuscode()
getContentType()
getTime()
getHeader()
getBody()

asString()
prettyprint()
prettypeak()
} These are used to print the response

get()
post()
put()
path()
delete()
⇒ Return type of all these methods is Response (I)

⇒ Action (when())

then(): (validation)

↓

ValidatableResponse (I)

① assertThat()
  → statuscode()
  → contentType()

② log().all()

Q] What are preconditions for API Testing??

⇒ ① Req^st body
② Content type
:
③ auth / authorization
  → basic()
  → oauth2()

* Create Mvn project

add dependencies :→

1) Restassured (4.4.0)
2) JSON simple (google code → (1.1.1))
3) Jackson – mapper – asl – (1.9.13)
4) TestNG – (7.4.0)

<!-- --> ⇓ comment

Ex 1:- src/test/java
└→ ⊞ CRUDoperationspractice

```
class createuserTest {
  main() {
// Step 1:- create the necessary data → request Body
// Go to reqres use post () → { "name": –
                                  "Job": – }
  ↳ directly we can't write it.
  ↳ JSON object

JSONobject jo = new JSONobject();
  jo.put("name", "Anfesh");
  jo.put("Job", "Tester");

// Step 2:- send the request
~~RestAssured.given()~~
  ↳ used to send the body

RequestSpecification reqt = RestAssured.given();
  reqt.body(jo);
  reqt.contentType(ContentType.JSON); // content Type()
Resp = reqt.post("https://reqres.in/api/users"); // post request
// Validate the response
  → ~~resp~~ Sysout(resp.asString()); // output
```

Ex2:- GetUserTest

```
Class GetUserTest {
  Public void getUserTest () {
Response res = Restassured.get("https://reqres.in/api/users/2");
    Syso (res.prettypeak());
  }
}
```

Ex3] Updatuser using BDD

```
Class updateusingBDD {
 @Test
  Public void updateuser () {
    baseURI = "https://reqres.in";

    JSONobject jobj = new JSONobject();
    jobj.put ("name", "morphens");
    jobj.put ("job", "Tester");

    given().body (jobj).contentType (contentType.JSON).
    when().patch ("/api/users/2").then().log().all();

  }
}
```

for put both change.

✱ Different ways of creating data: →

① Createuser using JSON object: →

```
class createuserJSONobject {
@Test
public void createuser() {
baseURI = "https://reqres.in";
// step1: → Create the neccesary data
JSONobject jobj = new JSONobject();
jobj.put("name", "chandra");
jobj.put("job", "Teacher");
// step2:- Send the request and validate the response
given().body(jobj).contentType(contentType.JSON).when().post()
("/api/users").then().assert.contentType(contentType.JSON).log().
all();
```

② Createuser using JSON File: →

Create db.json file inside Src/test/resources. and copy request body from Reqres.com and give the path of db.json into FileInputstream class

```
class createUsrJSONFile {
  @Test
  public void createUser(){
  baseURI = "https://reqres.in";
// step1:- create data
  FIS fis = new FIS("./path of db.JSON");
// step2:- send the request and validate
given().body(fis)
        .contentType(contentType.JSON)
        .when()
        .post("api/users")
        .then().log().all();
  }
}
```

③ CreateUser User using Hashmap:-

```
class createUsingHashmap {
  @Test
  p v createUser(){
  baseURI = "reqres.in";
// create data
  Hashmap map = new Hashmap();
  map.put("name", "Spiderman");
  map.put("job", "Actor");
// send the req and validate
given().body(map).
        .contentType(contentType.JSON)
        .when()
        .post("api/users").then().assertThat().statusCode(201).
        .then().log().all();
```

④ Create user using POJO class :→

POJO :→

Plain old Java object

Rules for POJO class :→

1) Declare the variables globally
2) provide a constructor to initialize purpose
3) provide getters and setters to access these variables.

① create pkg under src/main/Java

POJOclasses.

Create class UserLibrary

```
Class UserLibrary {
// Declare variables globally
String name;
String job;
// create constructor to initialize
    ↳ Right click → source → create const² using fields.

:  public UserLibrary (String name, String job) {
    super(); // remove it.
    this.name = name;
    this.job = job;
  }
    ↳ Right click – source – create getters and setters.
```

Ex47] create class under ~~package which~~ src/test/Java

```
Class createUsingPojo{
@Test
 PV pojo(){
 baseURI = "https://reqres.in";
// step 1:- create data
    UserLibrary lib = new UserLibrary("tomm", "Cutestrainer");
// send and validate
 given()
  • body (lib)
  • contentType(ContentType.JSON)
  • when()
  • post("/api/users")
  • then.log().all();
}
}
```